

REMARKS

Applicants appreciate the thorough examination of the present application as evidenced by the Final Action. As the rejections in the Final Action largely track the previous rejections, Applicants will respond only to newly raised issues herein to facilitate the Examiner's reconsideration of the rejections. However, to ensure that this submission is fully responsive to the Final Action, Applicants' previous amendment mailed August 1, 2005 is incorporated herein by reference in its entirety. Applicants submit that the present rejections should be withdrawn for at least the reasons discussed therein and further discussed below.

The Prior Art Rejections

Claims 1-3, 5, 7-11, 14-16, 18 and 20-33 are identified as standing rejected under 35 U.S.C. § 102(b) as anticipated by United States Patent No. 6,784,100 to Oh *et al.* (hereinafter "Oh"). Final Action, p. 2. Claims 4, 17, 6, 19 and 12-13 stand rejected as obvious under 35 U.S.C. § 103 over Oh alone or in combination with United States Patent Publication No. 2003/0134486 to Wang (hereinafter "Wang") or United States Patent No. 5,340,765 to Dennison *et al.* (hereinafter "Dennison"). Final Action, pp. 7-9.

Independent Claims 1, 14, 24, 32 and 33 were amended in the August 1, 2005 amendment to recite that the dielectric layer is formed at about or below a specified temperature (variously recited as 600°C, not generating a phase change of the underlying conductive layer, or below a minimum temperature associated with a phase change of the lower electrode) and to recite that the electrode/conductive layer and the protection layer are not exposed to a higher temperature before formation of the dielectric layer. Applicants' comments in this response will primarily be directed to the revisions to the rejections based on these amendments and the comments in the Response to Arguments section of the Final Action.

The Final Action asserts that the added recitations are disclosed by Oh because the higher temperature crystallization step of Oh "occurs after the dielectric layer is formed (see the sequence of steps described in col. 5, lines 30-58)." Final Action, p. 3. As such, the Final Action concludes that "then protection layer and the lower electrode are not

exposed to a temperature above 600°C before formation of the dielectric layer." Final Action, p. 3. While Oh may disclose a step 36 of depositing a Ta₂O₅ layer followed by a step 37 of crystallizing the deposited tantalum layer, Applicants submit that the Final Action is incorrect in asserting that such discloses formation of a dielectric layer is complete at the end of step 36. Oh, Figure 6. Applicants find no indication in Oh that the crystallization step 37 is not needed to form a dielectric layer. In fact, this aspect of the process of Oh is discussed in the present application. As stated in the specification:

In some embodiments of the present invention, the metal oxide layer formed as the dielectric layer is **not a Ta₂O₅ layer because a** crystallization and heat treatment should generally be applied at about **600°C or over after forming a Ta₂O₅ layer.**

Specification, p. 10, lines 26-29 (emphasis added). Thus, in light of the description of Oh, when read in light of the disclosure of the present application, it would be an unreasonably broad interpretation of the present claims to assert that Oh describes a process in which the dielectric layer is already formed in step 36 and that the underlying layers are, therefore, not exposed to a temperature above that recited in the respective claims before formation of the dielectric layer.

Thus, Oh fails to disclose the methods of the present independent claims as it, in fact, teaches away from the claimed method in that a tantalum oxide layer is formed on the nitride layer and then exposed to high temperatures. Accordingly, the rejections of all the independent claims should be withdrawn for at least these reasons.

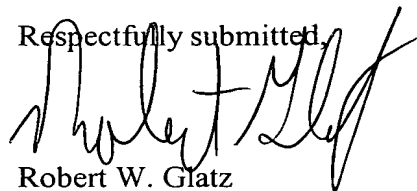
Applicants further note that the Final Action states in the Response to Arguments section that the crystallization step of Oh "*may be* [emphasis added] carried out at a temperature above 600°C." Final Action, p. 10. As with the required crystallization step itself, Applicants are unable to determine what the basis is in Oh for the Final Action's assertion of the conditional nature of the temperature teaching of Oh. Furthermore, even were Oh to indicate that such temperatures may be used, to support an anticipation rejection as applied in the present case, Oh would have to disclose that the crystallization step would be operative to form the layer at lower temperatures.

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CONCLUSION

Applicants respectfully submit that, for the reasons discussed above, the references cited in the present rejections do not disclose or suggest the present invention as claimed. Accordingly, Applicants respectfully request reconsideration of the rejections by the Examiner and allowance of all the pending claims and passing this application to issue.

Respectfully submitted,



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